

A decorative graphic in the top left corner consists of several overlapping circles of various colors (yellow, orange, red, purple, blue) that are divided into segments, resembling a stylized sunburst or a cluster of data points.

# Enterprise DevOps: Trends in Continuous Software Delivery

Speaker Name and Title



# A new wave of business opportunities & IT challenges



Platforms



*accelerates its reporting process from 20 days to several hours and cuts reporting costs by 50 percent*



**Analytics,  
Mobile,  
Social, &  
Cloud**



**ORVIS**

Customer Insight through Social Analytics increased Site revenue from product recommendations **by 70%**

**Transaction Systems**



**Dedicated Systems  
Single Database  
Managed one Solution**

**Web, e-business and SOA**



**Multiple Applications  
Some shared data  
Post Processing in Warehouses  
Batch Processing  
Time to Business Action**

**Interconnected Solutions**

**Action at real time speeds  
Processing occurs NOW !!!  
Business impact visualized  
Action taken immediately  
Strategic and Tactical differentiator**

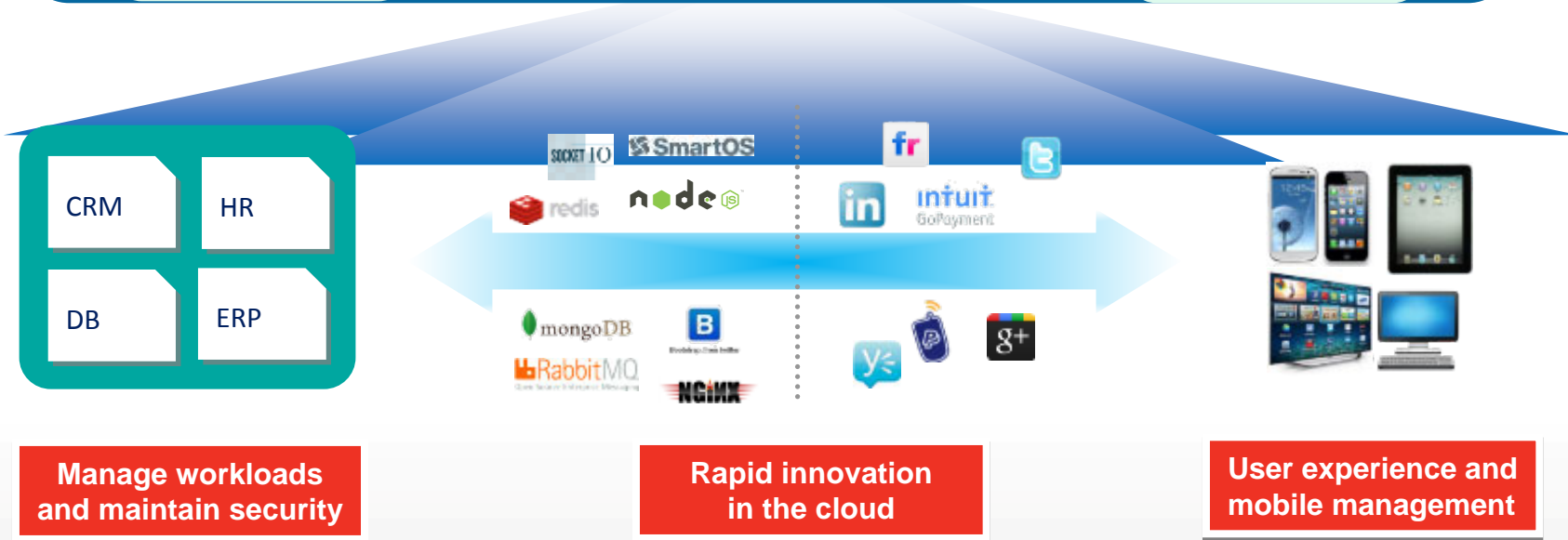
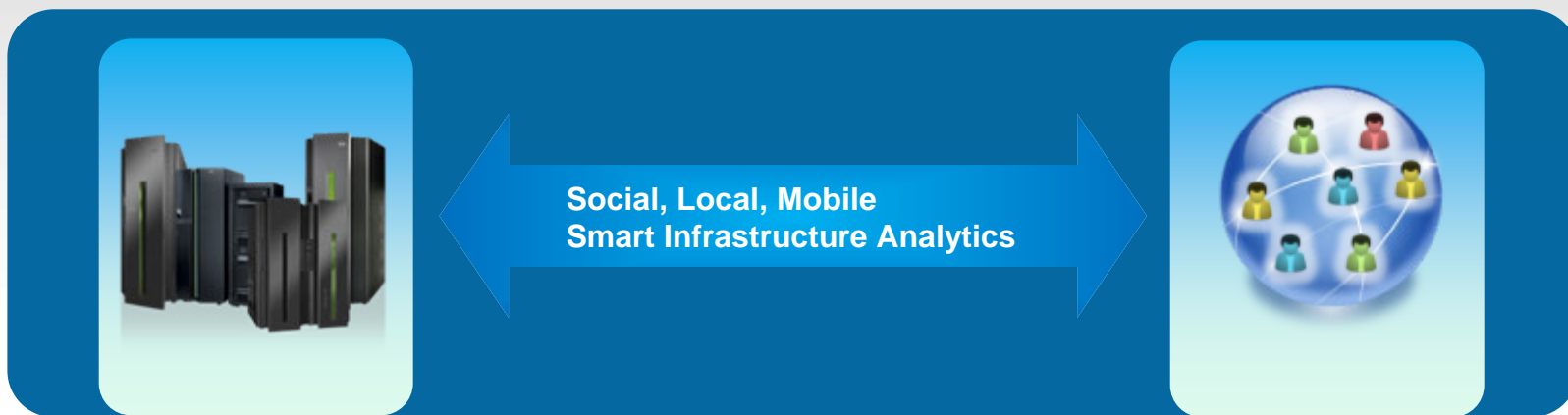
1960-

1990-

2010-

Time

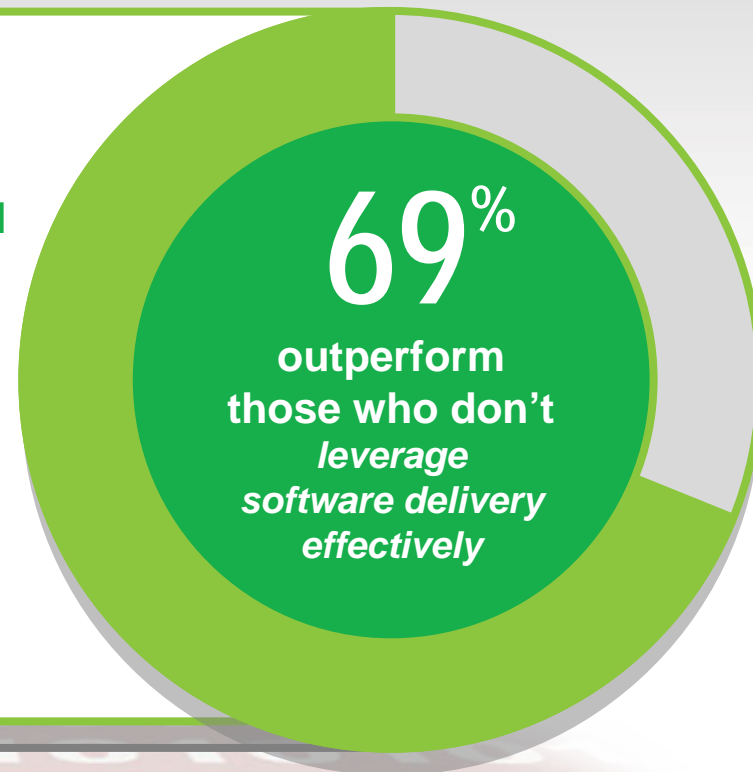
# New era systems integrate existing systems of record with new client-facing systems of engagement



# Software delivery is critical to success



*But only...*





# And a lack of continuous delivery impacts the entire business



## CHALLENGES

**Costly, error prone** manual processes and efforts to deliver software across an enterprise

**Slow** deployment to development and test environments leave teams **waiting and unproductive**

**Upgrade risk** due to managing multiple application configurations and versions across servers

Customers



Business Owners



Development/  
Test



Operations/  
Production



Software glitch costs major trading firm **\$440 million in 45 minutes**

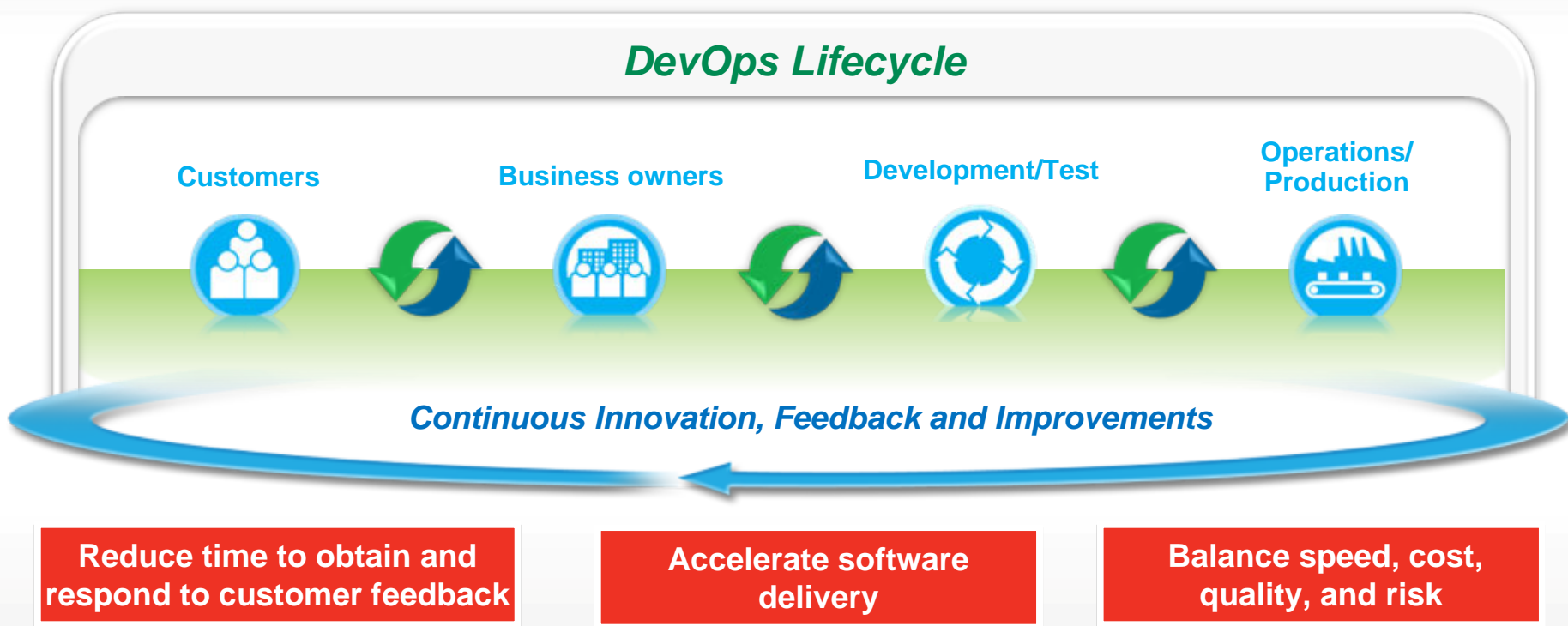
Major telecom provider paid out **\$2.7 million to 47,000 customers** overcharged after a software glitch

A bad software upgrade at a global bank left **millions unable to access money for four days**

# An approach for continuous delivery of software-driven innovation

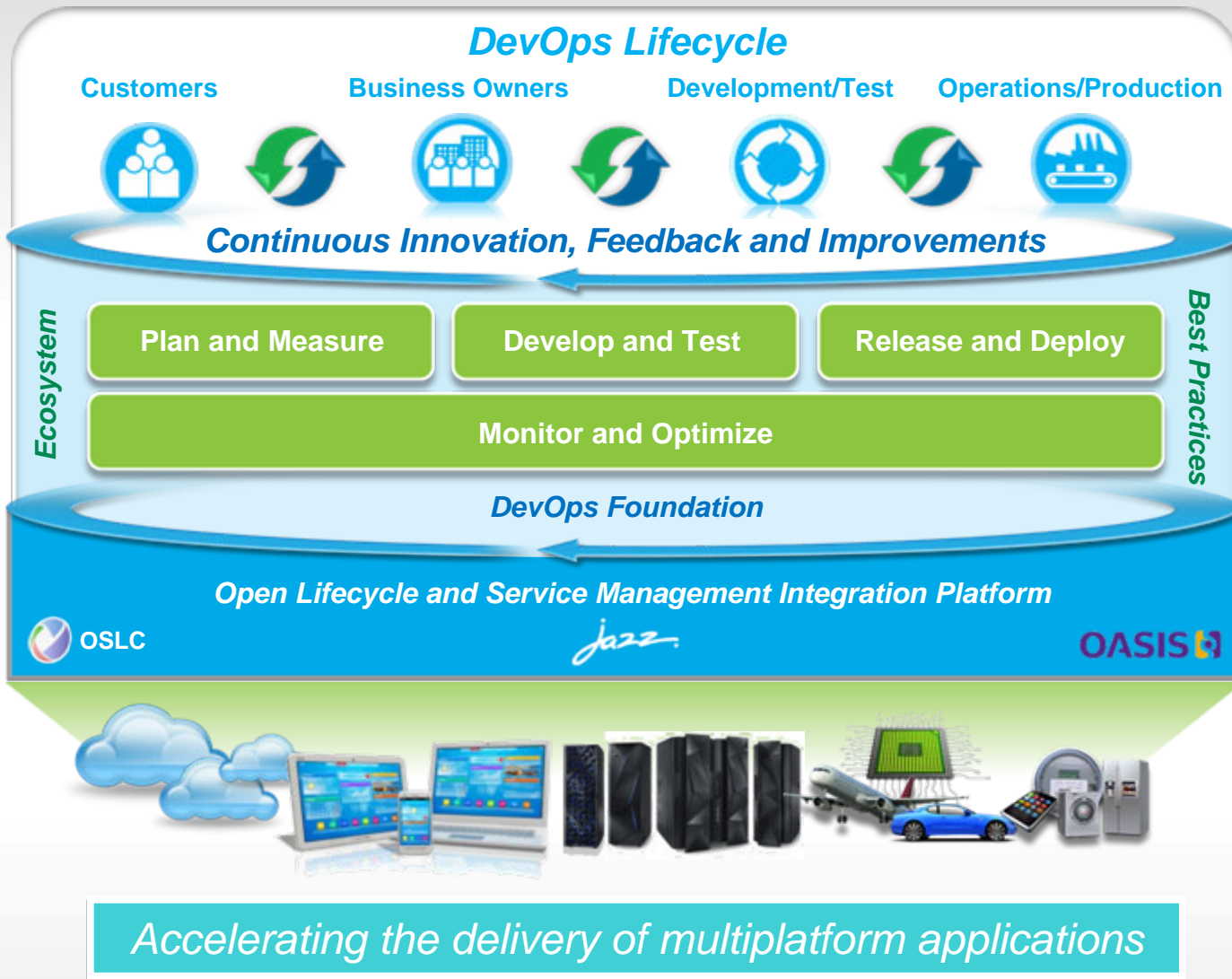
**dev-ops** *noun* \dev-äps\

Enterprise capability for continuous software delivery that enables clients to seize market opportunities and reduce time to customer feedback

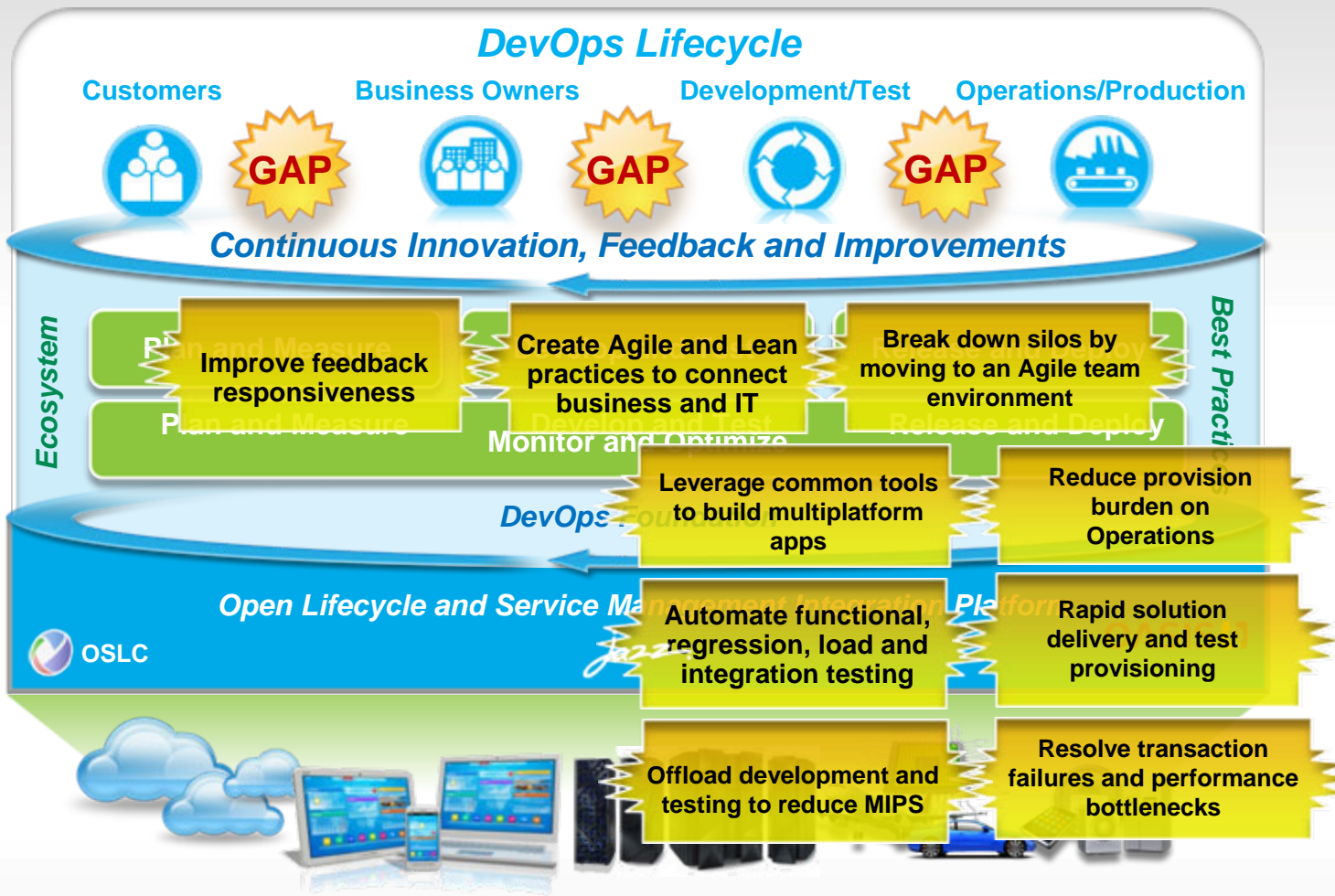




# IBM DevOps solution



# DevOps in a multiplatform development environment



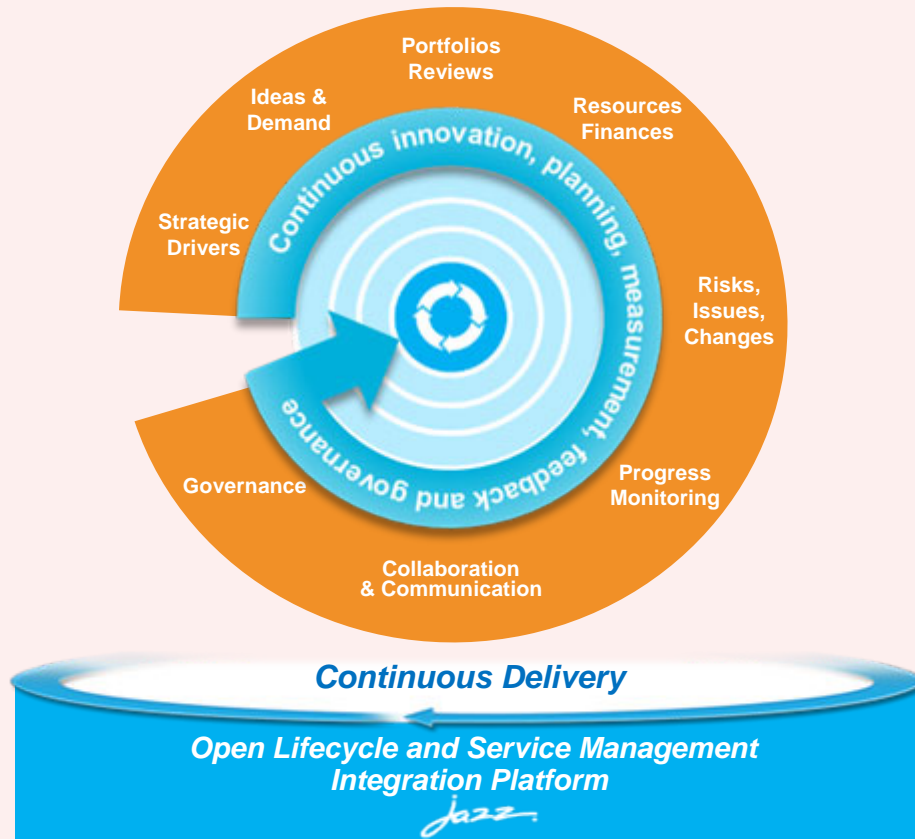
*Bottlenecks in software delivery can result in long delays, unnecessary costs, and waste of resources*





# Create Agile and Lean practices to connect business and IT

## Improve visibility and transparency



## Rational Focal Point

### Enabling you to...

- Better align investment decisions with value and organizational strategies and priorities
- Plan releases predictably driven by the needs of the business
- Gain control of development initiatives by improving visibility and transparency
- Provide proactive portfolio evolution and delivery governance



# Leverage common tools to build multiplatform apps

## Boost developer productivity



Rational Developer for the Enterprise  
IBM Worklight for MobileFirst platform

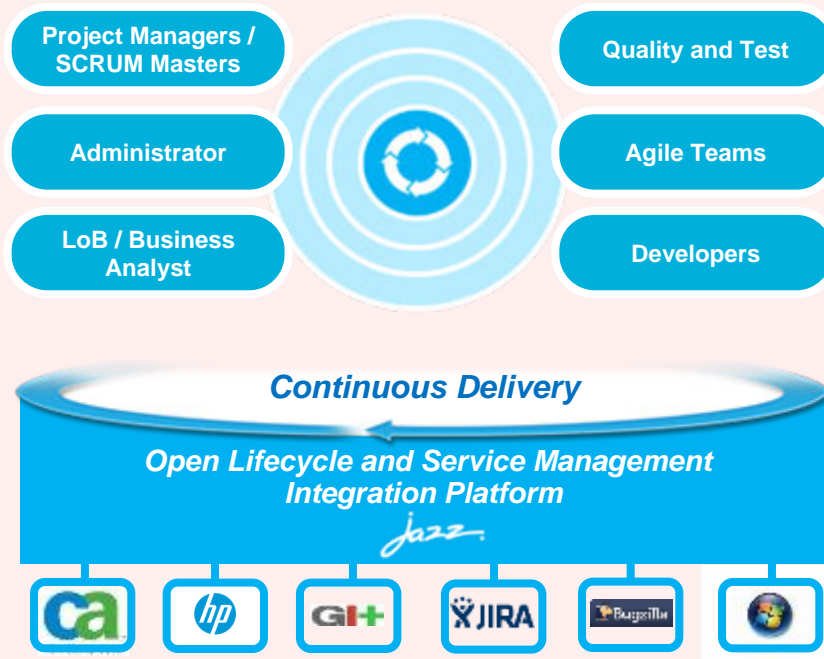
## Enabling you to...

- Leverage common Eclipse-based IDEs for all types of development
- Access broad coverage of runtimes, languages, compilers, and platforms
- Access via cloud-based environments like SmartCloud Enterprise+ (SCE+)
- Create agile services from existing mainframe assets



# Break down silos by moving to an Agile team environment

## Maximize team productivity



Rational Team Concert  
Rational Requirements Composer  
Rational Quality Manager

## Enabling you to...

- Manage all types of source - JavaScript to COBOL
- Create work items spanning technologies and solutions
- Accelerate agile adoption on the mainframe
- Integrate existing SCMs and deployment tools, e.g. ChangeMan and Endeavor
- Use Lifecycle integration adapters for third-party tools



# Automate functional, regression, load, and integration testing

**Rational Test Workbench**  
- leveraging Green Hat Technology

## Enabling you to...

- Fully embrace automated testing
- Create test automaton of native and hybrid mobile and mainframe applications
- Run automated tests to validate builds
- Take advantage of over 70 technologies and protocols out of the box

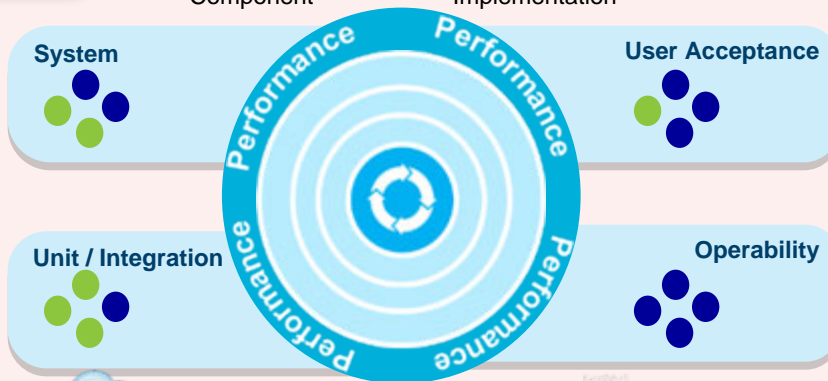


Includes Green Hat technology

## Improve application quality

● Virtual Component

● Real Implementation



**Continuous Delivery**

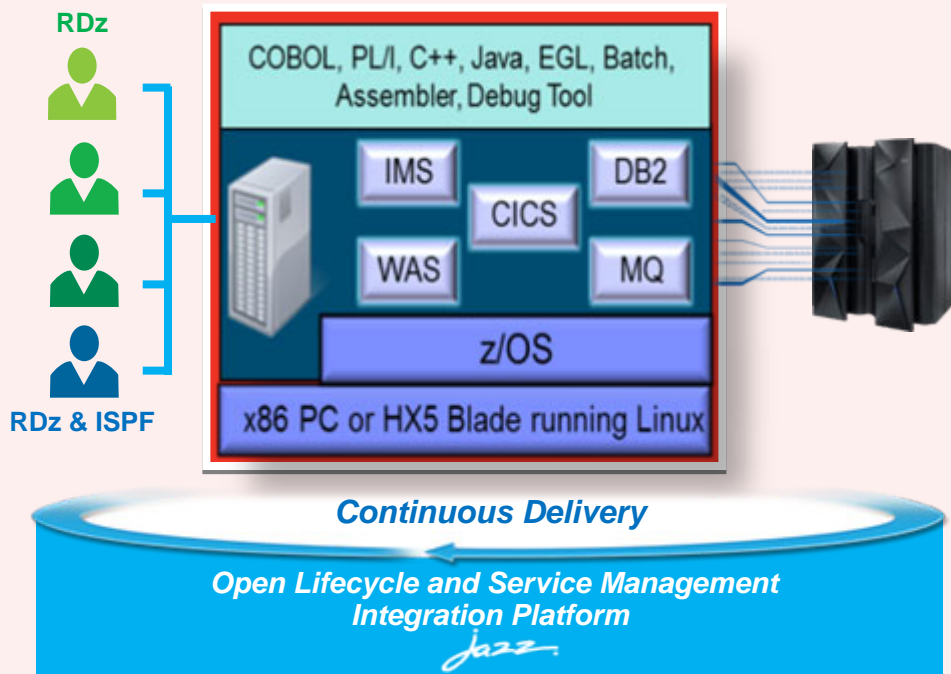
**Open Lifecycle and Service Management  
Integration Platform**

*Jazz*



# Offload development and testing to reduce MIPS

## Improve development flexibility



## Rational Development and Test Environment for System z

### Enabling you to...

- Liberate developers to rapidly prototype new applications
- Develop and test System z applications anywhere, anytime
- Free up mainframe development MIPS for production workload
- Eliminate costly delays by reducing dependencies on operations staff

**New** Try latest middleware, including CICS 5.1, IMS 12.1, and WebSphere 8.5

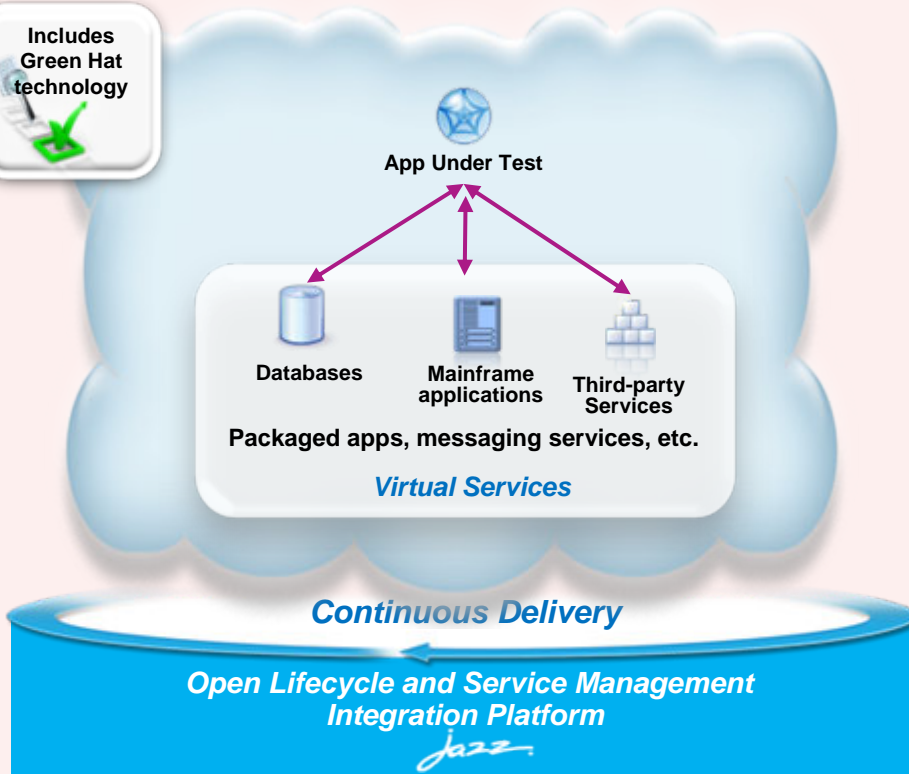
- System z Development and Test Solution



# Reduce provisioning burden on Operations

## Maintain test LPARs effectively

Includes  
Green Hat  
technology



**Rational Test Virtualization Server**  
- leveraging Green Hat technology

### Enabling you to...

- Test in isolation with 'stubbed' or 'mock' services

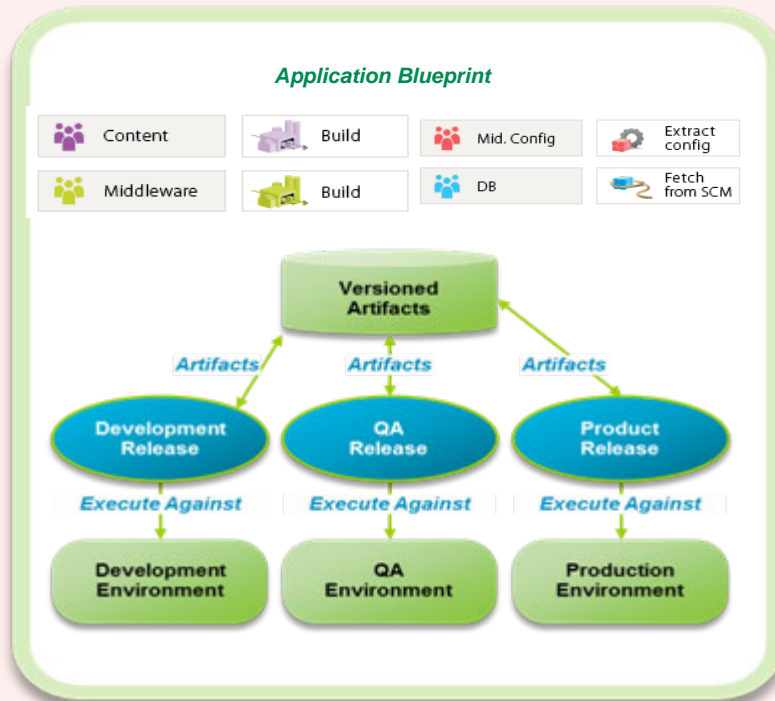
**New** Virtualize CICS applications inside the mainframe and Java applications in the JVM

- Reduce development dependency on operations
- Minimize subsystem dependency during testing
- Reduce infrastructure costs and free up MIPS for production use



# Rapid solution delivery and test provisioning

## Deliver test environments in minutes



urban{code}

An IBM company

IBM UrbanCode Deploy  
IBM UrbanCode Release  
IBM SmartCloud Orchestrator

## Enabling you to...

- Provision consistent images for test environments, reduce rework, and speed redeploy of application changes
- Quickly deploy multiple test instances in minutes versus hours or days

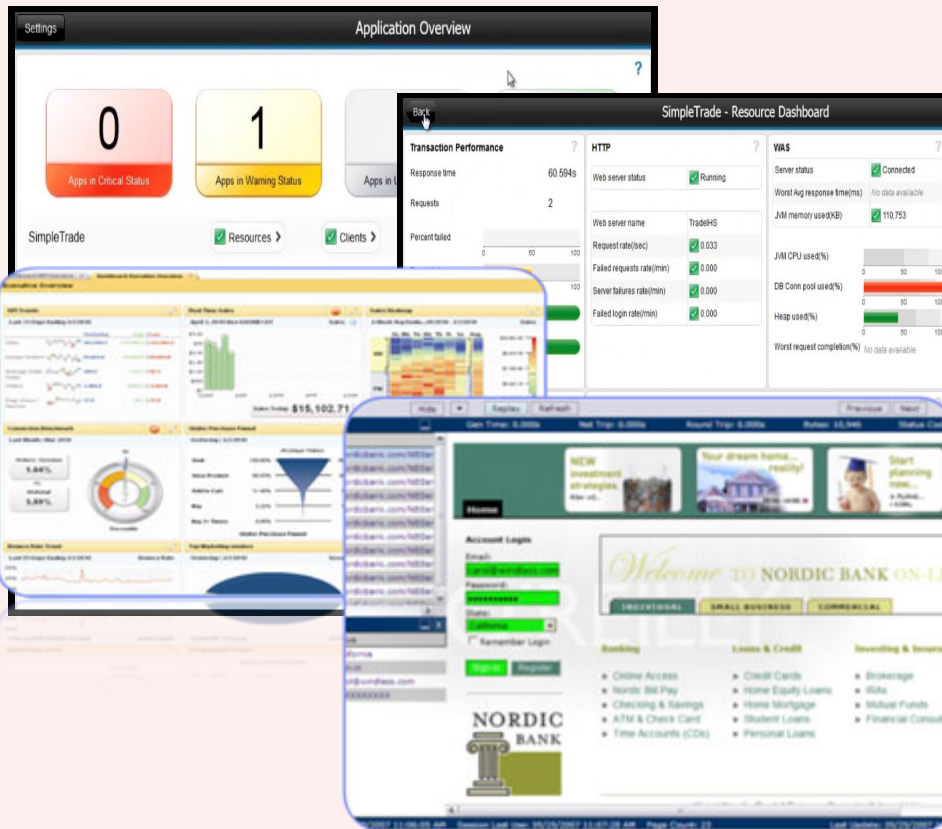
**New** Support mainframes using zLinux and z/OS native agent for Java applications

- Orchestrate and automate the deployment and management of applications, middleware configuration, and databases



# Manage and optimize application and infrastructure performance

## Gain actionable insights



## IBM SmartCloud Application Performance Management IBM SmartCloud Control Desk

### Enabling you to...

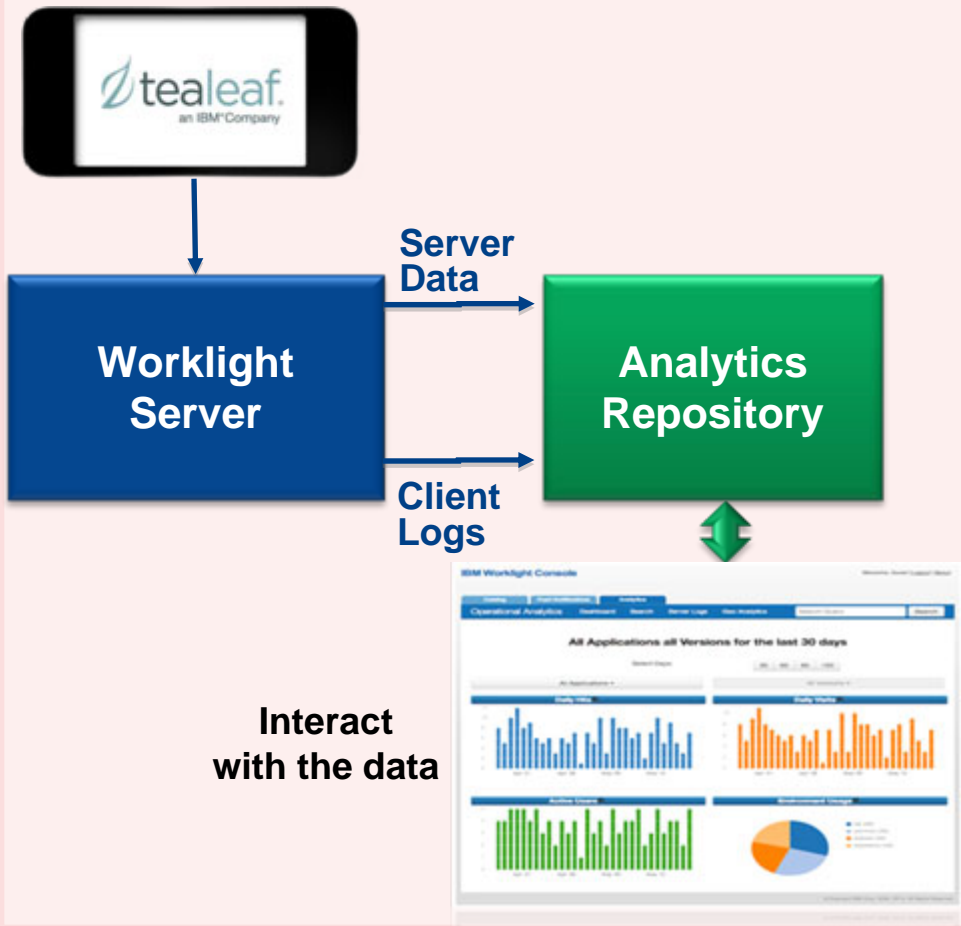
- Collaborate between development and operations with centralized incident management and tracking
- Quickly determine the root cause of critical cross-platform applications
- Easily determine application health and quickly isolate the source of any issues





# Improve feedback responsiveness

## Analyzing the customer experience challenges



**IBM Tealeaf  
IBM Digital Analytics**

### Enabling you to...

- Increase visibility into the actual customer experience
- Quickly diagnose and resolve issues
- Easily quantify business impacts
- Perform real-time customer analytics

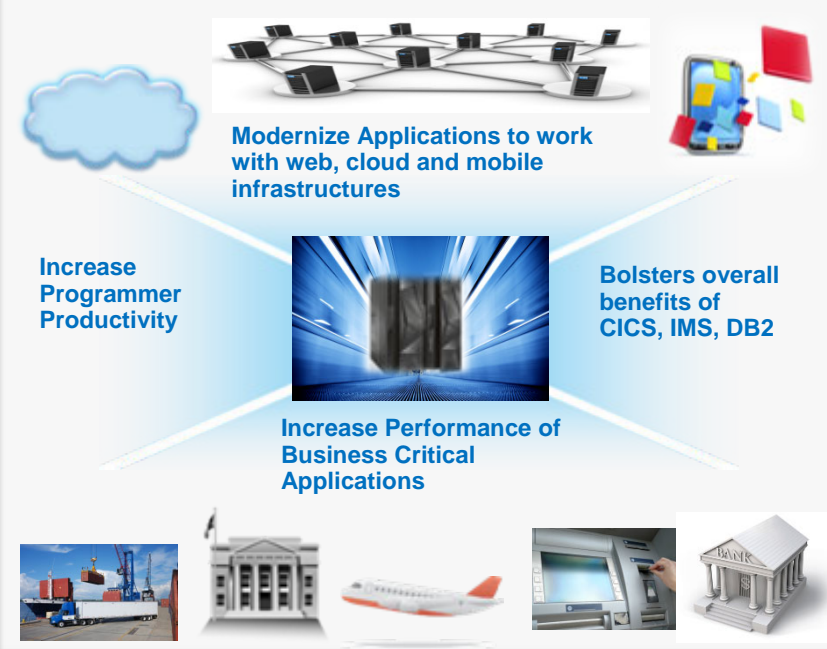


# Enterprise COBOL for z/OS v5.1

## The key to supercharging IBM System z Applications

- Advanced technology designed to optimize COBOL programs and fully exploit z hardware
  - Delivers greater than 10% performance improvement over Enterprise COBOL v4 for well structured, CPU-intensive batch applications on System z<sup>1</sup>
  - Many numerically intensive programs have shown performance increases greater than 20%<sup>1</sup>
  - Maintains compatibility with previous COBOL releases
- New programming and application modernization capabilities
  - Enables users to deliver enhancements to business critical applications quicker with less cost and lower risk
- Allows users, who implement sub-capacity tracking, to reduce administrative overhead
- Supports the ecosystem of COBOL development tools supplied by IBM and ISVs

where Tradition Meets Innovation...



*"Our testing of COBOL V5 shows a significant performance improvement for math. As a financial services company with a continually narrowing batch window, that improvement is very important to us. It will help us meet our Service Level Agreements and reduce cost driven by CPU utilization."*

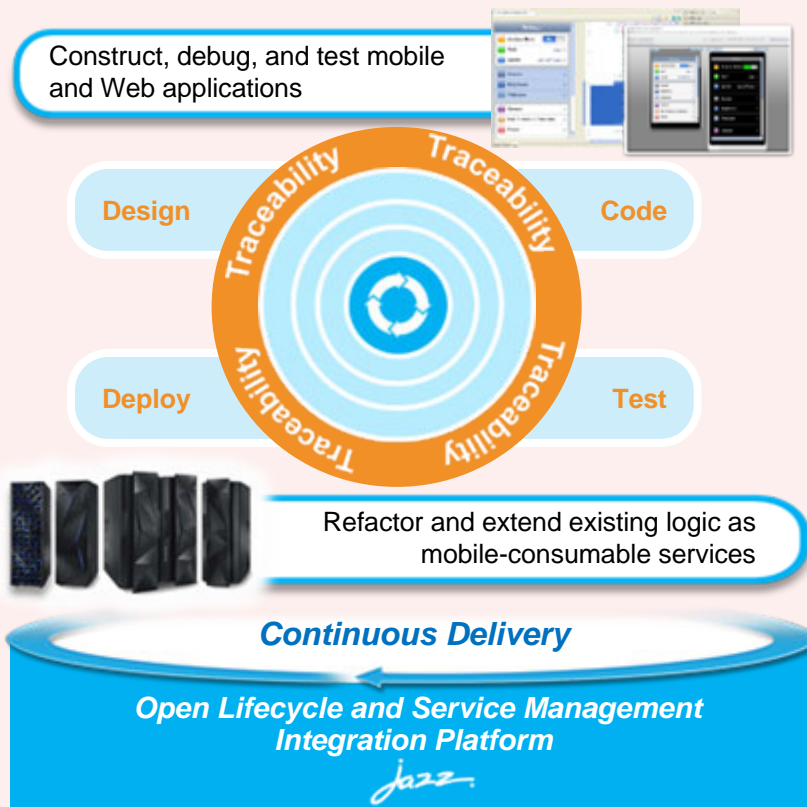
*Michael A Todd, Software Architect*

**DEVELOPER VALUE**



# Develop and test capabilities for mobile applications

## Accelerate mobile application development



**Rational Test Workbench**  
**IBM Worklight for MobileFirst platform**  
**Rational Business Developer**  
**Rational Application Developer**  
**Rational Developer for the Enterprise**

### Enabling you to...

- Quickly design, code, build, test, and deploy mobile apps that run on a wide variety of mobile platforms
- Refactor and extend existing back-end services to provide an optimal mobile experience

**New**

- Stub out back-ends to simplify test and development

**New**

- Automate testing for native and hybrid mobile apps



## Summary



- There are challenges to delivering software-driven innovation
- Disruptive technologies are driving greater need to innovate
- DevOps is critical to your success
- IBM has first class DevOps solutions and is continuing to invest and improve upon these solutions
- DevOps is just as relevant, if not more so, for System z as it is for distributed environments



# Questions



# Thank You

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